

REMARKS

Objections to the Drawings

The Examiner objected to figures 1, 3, and 8-11. Applicants have prepared and submitted herewith a complete set of substitute figures 1-11. Previous figure 8 is now figures 8A, 8B and 8C. Previous figure 9 is now 9A and 9B. Previous figure 10 is now figure 10A and 10B.

Objections Pursuant to 37 C.F.R 1.75(d)(1)

The Examiner objected to claims 33 and 52 as being grammatically incorrect and/or unable to be understood. Appropriate amendments have been made.

Objections Pursuant to 35 U.S.C. §112

The Examiner objected to claims 4, 5, 32 and 52 as being indefinite as failing to particularly point out and claim the subject matter which Applicants regard as the invention. Claims 4 and 5 have been amended to clarify that the “model” is the “simulation model”. Claim 32 has been amended to indicate that the reporting components are assembled hierarchically to form the report. Claim 52 has been amended to indicate that the reporting components are defined according to an object-oriented programming language.

Objections Pursuant to 35 U.S.C. §103

Rejection of Claims pursuant to 35 U.S.C. §103 as being unpatentable over Young et al  
in view of Weitz

The Examiner rejected claims 1, 2, 3, 8, 12, 13, 15, 16, 18-21, 26, 30, 32, 34-36, 37, 42, 46, 47, 50 and 51 as being unpatentable over Young et al ( “A Knowledge-Based Electronic Information and Documentation System”, ACM, 2000, hereafter “Young et al”) in view of Weitz ( “SGML Nets: Integrating Document and Workflow Modeling”, IEEE, 1998, hereafter “Weitz”). In light of the present amendments and the remarks below, Applicants believe claims

1, 2, 3, 8, 12, 13, 15, 16, 18-21, 26, 30, 32, 34-36, 37, 42, 46, 47, 50 and 51 to be in condition for allowance.

#### Summary of the Claimed Invention

The present invention provides a way to generate reports based on a simulation model in a technical computing environment. A set of reporting components is defined from which a report template can be assembled. The reporting components of the report template are processed to perform one or more operations within the technical computing environment and are in bi-directional communication with a simulation model. A report generator and the technical computing environment bi-directionally communicate such that the report generator is able to evaluate expressions in the technical computing environment, change initial conditions and parameters of the simulation model, and issue commands to the technical computing environment to advance the current state of a simulated model. A report is generated as a function of the processed reporting components. The reporting components may be processed to extract data from a model simulator interfaced with the technical computing environment. The extraction of data may occur during the simulation of a model. Thus different reports may be generated at different time steps or states in a simulation. The report generator of the present invention includes a user interface by which a designer can hierarchically assemble the reporting elements, which are defined according to an object-oriented programming language. The report generator also includes a generation engine that generates an intermediate representation of the report and a transformation engine that transforms the intermediate representation into an electronic document according to a user-selected format.

#### Summary of Young et al

Young et al discusses a knowledge-based electronic information and documentation system. The Young et al article describes a knowledge-based system used to automatically generate a collection of electronic notebooks which contain online documentation and reports. The described system is meant to be part of a larger system in which high-level simulations are turned into executable numerical programs. The reference materials are documentation and help

files for the system. The reports are based on instances created by a run of the simulation system.

The simulation system described in Young et al describes converting high level problem specifications into running programs by refining the problem through a series of levels until reaching a code level. Each step in refinement is referred to as a level and includes objects representing portions of the data of the level. The levels are arranged hierarchically in a tree-format. Clicking on an object in a level summary causes the execution of a function that creates and opens a notebook containing a description of the object. The description includes the names of the parent and children class objects. Attribute values may also be displayed. Young et al does not discuss the generation of report information during a simulation and/or prior to completion. It also does not discuss the bi-directional communication between the report generation process and the simulation sufficient to dynamically control aspects of the simulation for the purpose of the report. Rather the report generated is based on a completed code generation process.

#### Summary of Weitz

Weitz discusses the use of SGML (Standard Generalized Markup Language) to integrate document and workflow modeling. The article discusses the use of Document Template Definitions (DTDs) to define a set of reporting components that facilitate document processing operations using the logical tree structure of a document. The report components may be assembled into a report template. Weitz discusses the intermediate presentation of a report that may then be generated in a number of different formats. Weitz does not discuss the generation of a report during a simulation and/or prior to completion of a simulation. It also does not discuss the bi-directional communication between the report generation process and a simulation sufficient to dynamically control aspects of the simulation for the purpose of the report. Weitz is primarily directed to the manipulation and formatting of documents

Independent claim 1 ( and dependent claims 2 and 4-18 which are dependent thereon and therefore include the elements of claim 1) as amended claims a report generation method which requires the step of generating a report as a function of the processed reporting components. The reporting components bi-directionally communicate with the technical computing environment and

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the bi-directional communication between the reporting components and the technical computing environment is possible during the simulation of said simulation model. Neither Young et al nor Weitz includes bi-directional communication between reporting components and the technical computing environment during simulation of simulation model. While Young et al discusses generating views of the object instances produced by the simulation, it does not discuss the generation of reports during simulation (see page 284). Independent claim 19 (upon which claims 20 and 22-34 are dependent )and independent claim 35 (upon which claims 36 and 38-52 are dependent ), each contain a corresponding elements which is not disclosed by the combination of Young et al and Weitz. Since not all of the elements of the underlying independent claims are contained in the combination of Young et al and Weitz, claims 1-2, 8, 12, 13, 15, 16, 18-20, 26, 30, 32, 34-36, 42, 46, 47, 50 and 51 are not rendered obvious by their combination.

Rejection of Claims pursuant to 35 U.S.C. §103 as being unpatentable over Young et al  
in view of Weitz in further view of Lannert et al

The Examiner rejected claims 4-7, 9, 11, 14, 17, 22-25, 27, 29, 31, 33, 38-41, 43, 45, 48 and 52 as being unpatentable over Young et al in view of Weitz in further view of Lannert et al ( U.S. Patent No: 6, 101, 489, hereafter "Lannert et al").

In light of the present amendments and the remarks below, Applicants believe claims 4-7, 9, 11, 14, 17, 22-25, 27, 29, 31, 33, 38-41, 43, 45, 48 and 52 to be in condition for allowance.

Summary of Lannert et al

Lannert et al describes an education program which provides an educational experience via a goal-based learning system. A user is presented with a simulation environment in which to solve a business problem. Feedback is provided dynamically and the user is able to change the course of his response to the business problem and observe the results. Lannert et al does describe the execution of a program in a technical computing environment simulating complex simulation models. Lannert et al also lacks the reporting components of the present invention and the compilation and processing of the reporting components found in the present invention.

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Lannert et al is not analogous art. A business model simulation is not analogous to a technical computing simulation. The claimed invention takes place in a technical computing environment. Lannert et al provides some real time feedback, but lacks bi-directional communication during the simulation between defined reporting components and the technical computing environment ( which it doesn't have). As noted earlier, the combination of Young et al and Weitz lacked all of the elements of the independent claims and Lannert does not supply the missing elements. Accordingly, since the combination of Young et al in view of Weitz in view of Lannert lacks all of the elements of the claims, claims 4-7, 9, 11, 14, 17, 22-25, 27, 29, 31, 33, 38-41, 43, 45, 48 and 52 are not rendered obvious by their combination.

Rejection of Claims pursuant to 35 U.S.C. §103 as being unpatentable over Young et al  
in view of Weitz in further view of Lannert et al in further view of Skidmore et al

The Examiner rejected claims 10, 28 and 44 as being unpatentable over Young et al in view of Weitz in further view of Lannert et al in further view of Skidmore et al ( "A Prototype Notebook-Based Environment for Computational Tools", IEEE 1998, hereafter "Skidmore et al"). In light of the present amendments and the remarks below, Applicants believe claims 10, 28 and 44 to be in condition for allowance.

Summary of Skidmore

The Skidmore reference describes the Virtual Notebook Environment (ViNE). ViNe is platform independent web-based interface implemented across distributed platforms. It provides a web based version of a common lab notebook and additional support for collaboration and management of computational experiments. The reference does not discuss the elements required by the independent claims of the present invention that were noted as missing from the Young et al, Weitz and Lannert et al references.

Since the combination of Young et al, Weitz, Lannert et al and Skidmore et al do not contain all of the elements of the independent claims, claims 10,28 and 44 are not rendered obvious by their combination.

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CONCLUSION

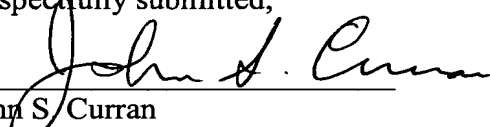
In view of the above, each of the presently pending claims in this application is believed to be in immediate condition for allowance. According, the Examiner is respectfully requested to pass this application to issue.

Applicant believes no fee is due with this response. However, if a fee is due, please charge our Deposit Account No. 12-0080, under Order No. MWS-037 from which the undersigned is authorized to draw.

Dated: July 24, 2003

Respectfully submitted,

By

  
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